REMARKS

The Present Invention

The present invention provides a complex comprising a virion having a surface and a lumen and comprising viral capsid proteins. The present invention further provides a method of inoculating a mammal, a method of immunizing a mammal, and a pharmaceutical composition comprising a complex and a physiologically-acceptable carrier.

The Pending Claims

Upon entry of the proposed amendments, claims 1-6, 8-19, 21-32, 40, and 43-54 will be pending. Claims 1-6, 8-18, 46, 47, and 52 are directed to the complex, claims 19, 21-25, 48, and 49 are directed to the method of inoculating a mammal, claims 26-32, 50, 51, and 53 are directed to the method of immunizing the mammal, and claims 40, 43-45, and 54 are directed to the pharmaceutical composition.

The Amendments to the Claims

Claims 21, 22, 28, and 29 have been amended to correct the spelling of "MHC-I" and/or "MHC-II". Claims 52-54 are new and are supported by the specification at, for example, page 6, lines 26-27, page 7, lines 2-9, page 11, lines 15-25, and page 11, lines 6-14. Accordingly, no new matter has been added by way of these amendments.

The Office Action

Claims 1-6, 8-17, 19, 21-24, 26-31, 40, 43, 44, 46, 48, and 50 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent 5,846,782 (Wickham et al.) and Kikuchi et al., *Hum. Gene Ther.*, *10*, 1375-1387 (1999). Claims 18, 25, 32, 45, 47, 49, and 51 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the combination of the disclosures of the Wickham '782 patent and the Kikuchi et al. reference in further view of Janeway et al., *Immunobiology*, 3rd ed., Garland Publishing, Inc., p. 727 (1997), or Ashkar et al., *Science*, *287*, 861-864 (2000). Reconsideration of these rejections is hereby requested.

Discussion of Rejections Under 35 U.S.C. § 103(a)

The Office Action has rejected the pending claims under Section 103 as allegedly encompassing obvious subject matter in view of the Wickham '782 patent and the Kikuchi reference, by themselves or in further view of the disclosure of the Janeway reference or the

disclosure of the Ashkar reference. These rejections are respectfully traversed for the reasons set forth below.

To establish a *prima facie* case of obviousness under Section 103 based on a combination of references, (i) the references must disclose or suggest every element of the claimed invention, (ii) there must be a motivation to combine the references, and (iii) the combination of references must provide a reasonable expectation of success for making the claimed invention. M.P.E.P. § 2143.

According to the Office Action, the Wickham '782 patent discloses an adenoviral vector containing a modified fiber protein comprising a non-native ligand, which also encodes a passenger gene, the product of which can elicit a strong immune response that produces a therapeutic effect. The Office Action alleges that the Kikuchi reference discloses a recombinant adenovirus expressing the CD40 ligand (CD40L). The Office Action then concludes that one of ordinary skill in the art would have been motivated to express a CD40 ligand on the surface of the adenovirus disclosed in the Wickham '782 patent to induce a cellular immune response, and that one of ordinary skill in the art would have a reasonable expectation of success in doing so because both the Wickham '782 patent and the Kikuchi et al. reference use adenovirus to express recombinant ligands on the vector surface. While the Office Action concedes that neither the Wickham '782 patent nor the Kikuchi et al. reference discloses an adenovirus expressing a second antigen at its surface, it concludes that one of ordinary skill in the art would nonetheless be motivated to express a second antigen on the adenoviral surface to induce a specific immune response.

All of the pending claims require a complex comprising (a) a virion having a surface and a lumen, (b) a nucleic acid encoding at least one first non-native antigen, and (d) at least one second non-native antigen displayed on the virion surface. Neither the Wickham '782 patent nor the Kikuchi reference et al. reference discloses or suggests a virion comprising a non-native antigen displayed on the virion surface. Indeed, the Office Action concedes this fact at, for example, page 3, third paragraph, and page 5, second paragraph. The Office Action, however, appears to imply that the Wickham '782 patent suggests expressing an antigen on the surface of a virion because it discloses that adenoviruses (e.g., chimeric adenoviruses) can express a wide range of recombinant genes. This disclosure, however, merely amounts to a generic and well known feature of adenoviruses, and would not suggest to one of ordinary kill in the art to display non-native antigens on the adenoviral surface. Moreover, the Wickham '782 patent does not identify any of the "passenger genes" (e.g., listed at column 14, lines 37-59) as antigens. Accordingly, the Wickham '782 patent does not

point to an adenoviral vector comprising a "nucleic acid encoding at least one first non-native antigen," as required by the pending claims.

The Kikuchi reference similarly does not disclose a virion expressing a non-native antigen at the virion surface. The adenoviral vector disclosed in the Kikuchi reference is generated by introducing the CD40 ligand gene into the E1-E3-deleted adenoviral vector disclosed by Hersh et al., *Gene Ther.*, *2*, 124-131 (1995) (copy enclosed) (see Kikuchi et al. reference at page 1376, right column, second complete paragraph), in which an expression cassette replaces the E1 region of the adenoviral genome. Thus, contrary to the Office Action's assertion, the CD40 ligand is not expressed as part of, or in place of, an adenoviral capsid protein. As such, the adenoviral vector disclosed in the Kikuchi reference does not express the CD40 ligand at its surface. Accordingly, the Kikuchi reference does not point to an adenoviral vector comprising "at least one non-native second antigen displayed on the surface" of the adenoviral vector, as required by the pending claims.

In view of the above, the combined disclosures of the Wickham '782 patent and the Kikuchi reference do not disclose or suggest every element of the pending claims.

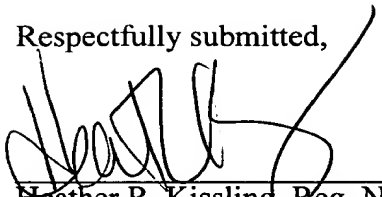
The Janeway and Ashkar references do not cure the various deficiencies of the Wickham and Kikuchi references vis-à-vis the pending claims. In particular, the Janeway and Ashkar references do not disclose or suggest a complex comprising (a) a virion having a surface and a lumen, (b) a nucleic acid encoding at least one first non-native antigen, and (d) at least one second non-native antigen displayed on the virion surface.

Thus, in view of the foregoing, the cited references do not disclose or suggest every element of the pending claims. Accordingly, the Office Action has failed to establish a *prima facie* case of obviousness, and the Section 103 rejections should be withdrawn.

Conclusion

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned agent.

Respectfully submitted,



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